Computer System Memory

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Newport Area Career and Technical Center

Introduction

Purpose:

The purpose of this core experience is to expose the student to the different types of solid state memory modules. In addition the student will experience group dynamics and exercise presentation skills.

Core Objective-overall objective for core learning experiences:

The student will demonstrate a general understanding of system memory and what considerations are examined prior to selecting a specific type of system memory for an application.

The student will present the results in groups to an audience who is not familiar with the subject area.

Objectives-specific objectives for each learning experience:

The student will be able to:
- Define RAM/ROM
- Discuss the characteristics of RAM/ROM
- Determine the proper use of RAM/ROM considering application, and cost
- Explain the basic operation of RAM/ROM addressing

Estimated Time: 18 hrs

Standards

The following standards are addressed by this core learning experience:

New Standards Performance Standards:

E1. Reading

E1c. The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- restates or summarizes information;
- relates new information to prior knowledge and experience;
- extends ideas;
- makes connections to related topics or information.

E2. Writing

E2a. The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

E3. Speaking, Listening, and Viewing

E3b. The student participates in group meetings, in which the student:

- displays appropriate turn-taking behaviors;
- actively solicits another person's comment or opinion;
- offers own opinion forcefully without dominating;
- responds appropriately to comments and questions;
- volunteers contributions and responds when directly solicited by teacher or discussion leader;

- gives reasons in support of opinions expressed;
- clarifies, illustrates, or expands on a response when asked to do so; asks classmates for similar expansions;
- employs a group decision-making technique such as brainstorming or a problem-solving sequence (e.g., recognize problem, define problem, identify possible solutions, select optimal solution, implement solution, evaluate solution);
- divides labor so as to achieve the overall group goal efficiently.

E3c. The student prepares and delivers an individual presentation in which the student:

- shapes information to achieve a particular purpose and to appeal to the interests and background knowledge of audience members;
- shapes content and organization according to criteria for importance and impact rather than according to availability of information in resource materials;
- uses notes or other memory aids to structure the presentation;
- develops several main points relating to a single thesis;
- engages the audience with appropriate verbal cues and eye contact
- projects a sense of individuality and personality in selection and organizing content, and in delivery.

E4. Conventions, grammar, and usage of English language

E4a. The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

E4b. The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student's revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- adding or deleting details;
- adding or deleting explanations;
- clarifying difficult passages;

- rearranging words, sentences, and paragraphs to improve or clarify meaning;
- sharpening the focus;
- reconsidering the organizational structure;
- rethinking and/or rewriting the piece in light of different audiences and purposes.

E7. Functional Documents

E7a. The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- visual appeal, e.g., format, graphics, white space, headers;
- logic of the sequence in which the directions are given;
- awareness of possible reader misunderstandings.

E7b. The student produces functional documents appropriate to audience and purpose, in which the student:

- reports, organizes, and conveys information and ideas accurately;
- includes relevant narrative details, such as scenarios, definitions, and examples;
- anticipates readers' problems, mistakes, and misunderstandings;
- uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- establishes a persona that is consistent with the document's purpose;
- employs word choices that are consistent with the persona and appropriate for the intended audience.

Mathematics

M1. Number and operation concepts

The student produces evidence that demonstrates understanding of number and operation concepts; that is, the student:

M1a. Uses addition, subtraction, multiplication, division, and exponentiation in forming and working with numerical or algebraic expressions (the statement has been modified).

M1e. Represents numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.

M1f. Compares numbers using order relations, differences, ratios, proportions, percents, and proportional change.

M1g. Carries out proportional reasoning in cases involving part-whole relationships and in cases involving expansions and contractions.

M1h. Understands dimensionless numbers, such as proportions, percents, and multiplicative factors, as well as numbers with specific units of measure, such as numbers with length, time, and rate units.

M2. Geometry and Measurement Concepts

The student produces evidence that demonstrates understanding of geometry and measurement concepts; that is, the student:

M2a. Models situations geometrically to formulate and solve problems.
M2b. Works with two- and three- dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.
M2d. Visualizes objects, paths, and regions in space, including intersections and cross sections of three dimensional figures, and describes these using geometric language.

M6. Mathematical Skills and Tools

The student demonstrates fluency with basic and important skills by using these skills accurately and automatically, and demonstrates practical competence and persistence with other skills by using them effectively to accomplish a task, perhaps referring to notes, or books, perhaps working to reconstruct a method; that is, the student:

M6a. Carries out numerical calculations and symbol manipulations effectively, using mental computations, pencil and paper, or other technological aids, as appropriate.
M6b. Uses a variety of methods to estimate the values, in appropriate units, of quantities met applications, and rounds numbers used in applications to an appropriate degree of accuracy.
M6d. Uses basic geometric terminology accurately, and deduces information about basic geometric figures in solving problems.
M6e. Makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.
M6h. Sets up and solves equations, symbolically (when possible) and graphically.
M6m. Knows standard methods to solve basic problems and uses these methods in approaching more complex problems.

Science

S5. Scientific Thinking

The student demonstrates skill in scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense and diverse conceptual understanding, and appropriate ideas and methods to investigate science; that is, the student:

S5c. Uses evidence from reliable sources to develop descriptions, explanations, and models; and makes appropriate adjustments and improvements based on additional data or logical arguments.
S5d. Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.
S5e. Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.
S5f. Works individually and in teams to collect and share information and ideas.

S6. Scientific Tools and Technologies

The student demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively; that is, the student:

S6d. Acquires information from multiple sources, such as print, the Internet, computer data bases, and experimentation.

S7. Scientific Communication

The student demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth of conceptual understanding in science; that is, the student:

S7a. Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.
S7e. Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

Applied Learning

A1. Problem Solving

Improve a system

A1b. The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- explains the structure of the system
- analyzes the way the system works, taking account of its functional, social, environmental, and commercial requirements

Plan and organize an event or an activity

A1c. The student plans and organizes an event or an activity:

- develops a planning schedule (the statement has been modified).
- implements and adjusts the planning schedule (the statement has been modified);
- evaluates the success of the event or activity using qualitative and/or quantitative methods;

A2. Communication Tools and Technologies

A2a. The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:

- organizes the presentation in a logical way appropriate to its purpose;
- adjusts the style of presentation to suit its purpose and audience;
- speaks clearly and presents confidently;
- responds appropriately to questions from the audience;

A2b. The student prepares a formal written proposal or report to an organization beyond the school; that is, the student:

- organizes the information in the proposal or report in a logical way appropriate to its purpose;
- produces the proposal or report in a format similar to that used in professionally produced documents for a similar purpose and audience.

A2c. The student develops a multi-media presentation, combining text, images, and/or sound; that is, the student:

- selects an appropriate medium for each element of the presentation;

- uses the selected media skillfully, including editing and monitoring for quality;
- achieves coherence in the presentation as a whole;
- communicates the information effectively
-

A3. Information Tools and Technologies

A3a. The student gathers information to assist in completing project work; that is, the student:

- identifies potential sources of information to assist in completing the project;
- interprets and analyzes the information
- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

A3c. The student uses word-processing software to produce a multi-page document; that is, the student:

- uses features of the software to create and edit the document;

A4. Learning and Self-Management Tools and Techniques

A4a. The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
- identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
- uses what he or she learns from models in planning and conducting project activities.

A4b. The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

A5. Tools and Techniques for Working With Others

A5a. The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

ITEA Standards:

1. Students will develop an understanding of the characteristics and scope of technology.

In order to comprehend the scope of technology, students in grades 9-12 should learn that
J. The nature and development of technological knowledge and processes are functions of the setting.
K. The rate of technological development and diffusion is increasing rapidly.
L. Inventions and innovation are the results of specific, goal-directed research.
M. Most development of technologies these days is driven by the profit motive of the market.

2. Students will develop an understanding of the core concepts of technology

In order to recognize the core concepts of technology, students in grades 9-12 should learn that
Y. The stability of a technological system is influenced by all of the components in the system, especially those in the feedback loop.
Z. Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.
AA. Requirements involve the identification of the criteria and constraints of a product or system and the determination of how they affect the final design and development.
BB. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.
CC. New Technologies create new processes.

13. Students will develop the abilities to assess the impact of products and systems.

As part of learning how to assess the impact of products and systems, students in grades 9-12 should be able to:
J. Collect information and evaluate its quality.
K. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.
L. Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.
M. Design forecasting techniques to evaluate the results of altering natural systems.

Core Rubrics

CATEGORY	4	3	2	1
COMREHENSION	Student is able to accurately answer all questions	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
SPEAKES CLEARLY	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or cannot be understood OR mispronounces more than one word.
POSTURE AND EYE CONTACT	Stands up straight, looks relaxed and confident. Establishes eye contact with everyone in the room during the presentation.	Stands up straight and establishes eye contact with everyone in the room during the presentation.	Sometimes stands up straight and establishes eye contact.	Slouches and/or does not look at people during the presentation.
VISUAL AIDS	Visual aids are neat, accurate and add to the reader's understanding of the topic.	Visual aids are accurate and add to the reader's understanding of the topic.	Visual aids are neat and accurate and sometimes add to the reader's understanding of the topic.	Visual aids are not accurate OR do not add to the reader's understanding of the topic.
AMOUNT OF INFORMATION	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
QUALITY OF INFORMATION	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. Student provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
ORGANIZATION	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well constructed.	The information appears to be disorganized. 8)
INTERNET USE	Successfully uses suggested internet links to find information and navigates within these sites easily without assistance.	Usually able to use suggested internet links to find information and navigates within these sites easily without assistance.	Occasionally able to use suggested internet links to find information and navigates within these sites easily without assistance.	Needs assistance or supervision to use suggested internet links and/or to navigate within these sites.
SOURCES	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
DRAFT COPY	Detailed draft is neatly presented and includes all required information.	Draft includes all required information and is legible.	Draft includes most required information and is legible.	Draft is missing required information and is difficult to read.
PARAGRAPH CONSTURCTION	All paragraphs include introductory sentence, explanations or details, and concluding sentence.	Most paragraphs include introductory sentence, explanations or details, and concluding sentence.	Paragraphs included related information but were typically not constructed well.	Paragraphing structure was not clear and sentences were not typically related within the paragraphs.
MECHANICS	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.
PARTICIPATION	All Group members were actively involved in the development of the report and the final presentation	All group members were involved in the report and the final presentation.	Most group members were involved in the project and the final presentation	Participation was limited to one or two individuals in the group

Core Learning Experience Summary Chart

Student Tasks & Instructional Methodology for Each Learning Experience		
Student Learning Experiences	**Student Tasks**	**Instructional Methodologies**
Learning Experience I	Individual research Define/Discuss: Random Access Memory, (RAM), Dynamic RAM, Static RAM, Operation, Limitations, Applications	Teacher overview Research Assistance
Learning Experience II	Individual research Define/Discuss: Random access Memory, (RAM), DIPs, SIMMs, DIMMS, SODIIMM, FPM DRAM, EDO DRAM, SDRAM, RDRAM, Credit Card Memory, PCMCIA Memory Card, Flash, VRAM	Teacher overview Research Assistance
Learning Experience III	Individual research Define/Discuss: Read Only Memory, (ROM), ROM, PROM, EPROM, EEPROM, Flash memory	Teacher overview Research Assistance
Integrative/Review Experience	Group research The student will be grouped with no more than 4 other students and will be responsible for producing a comprehensive oral and written report to include all types of solid state memory modules. The audience will be unaware of the subject area and their final understanding will be considered as a factor in the overall grade.	Teacher overview Research Assistance

Student Learning Experience 1

Purpose:
The student will be able to describe RAM memory and the two major groupings, dynamic and Static RAM.

Estimated Time: 4 hrs

Standards:

New Standards Performance Standards:

E1. Reading

E1c. The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- restates or summarizes information;
- relates new information to prior knowledge and experience;
- extends ideas;
- makes connections to related topics or information.

E2. Writing

E2a. The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
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- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
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- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

E4. Conventions, grammar, and usage of English language

E4a. The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
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- sentence construction;
- spelling;
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E4b. The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student's revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- adding or deleting details;
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- reconsidering the organizational structure;
- rethinking and/or rewriting the piece in light of different audiences and purposes.

E7. Functional Documents

E7a. The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- visual appeal, e.g., format, graphics, white space, headers;
- logic of the sequence in which the directions are given;
- awareness of possible reader misunderstandings.

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S7e. Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

Applied Learning

A1. Problem Solving

Improve a system

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- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

A3c. The student uses word-processing software to produce a multi-page document; that is, the student:

- uses features of the software to create and edit the document;

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A4a. The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
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A4b. The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

A5. Tools and Techniques for Working With Others

A5a. The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
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ITEA Standards:

1. Students will develop an understanding of the characteristics and scope of technology.

In order to comprehend the scope of technology, students in grades 9-12 should learn that
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K. The rate of technological development and diffusion is increasing rapidly.
L. Inventions and innovation are the results of specific, goal-directed research.
M. Most development of technologies these days is driven by the profit motive of the market.

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Z. Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.
AA. Requirements involve the identification of the criteria and constraints of a product or system and the determination of how they affect the final design and development.
BB. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.
CC. New Technologies create new processes.

13. Students will develop the abilities to assess the impact of products and systems.

As part of learning how to assess the impact of products and systems, students in grades 9-12 should be able to:
J. Collect information and evaluate its quality.
K. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.
L. Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.
M. Design forecasting techniques to evaluate the results of altering natural systems.

Key Concepts Addressed:

Random Access Memory, (RAM)
Dynamic RAM
Static RAM
Operation
Limitations
Applications

Student Tasks:

Write a 2-page paper on what Random Access Memory.
The following questions will be addressed:
- What is Random Access Memory,(RAM)?
- How does RAM work?
- What two major classes of RAM?
- How do RAM characteristics support the applications?

* see appendix

Explanation of how learning tasks require higher-level thinking:

The student will be required to research and distill the necessary information to answer the questions listed above. The end result will require a through understanding of the concepts.

Teacher Responsibilities:

Overview and research assistance

Materials & Equipment:

Internet networked computer
Writing material

Resources:

http://www.howstuffworks.com/computer-memory.htm
http://www.xtronics.com/memory/how_memory-works.htm
http://www.gramlich.net/projects/computer_tutorial/memory.html
http://www.crucial.com/library
http://www.pctechguide.com/03memory.htm#Primary_cache
http://pcsupport.about.com/library/weekly/aa080700a.htm
Introductory, Computer Concepts 3rd Edition
      ISBN: 0-7600-5449-5

Student Learning Experience 1 Appendix

Random Access Memory
Computer Technology

Name _____Due Date:_____

Directions:

- The report must be in size 10 font, double spaced, Comic Sans MS a minimum of 2 pages and 1" margins on all sides.
- You must turn in a bibliography
- Your report will consist of answering the following questions as a minimum:

    1. What is Random Access Memory,(RAM)?
    2. How does RAM work?
    3. What two major classes of RAM?
    4. How do RAM characteristics support the applications?

- Grading will be as follows:

A+	31, 32
A	30
A-	29
B+	28
B	27
B-	26
C+	25
C	24
C-	23
D	21
D-	20
F	19 or below

- Using the rubrics on the reverse side, the following grades will be assessed:

CATEGORY	4	3	2	1
COMREHENSION	Student is able to accurately answer all questions	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
AMOUNT OF INFORMATION	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with one sentence about each.	One or more topics were not addressed.
QUALITY OF INFORMATION	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
ORGANIZATION	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well constructed.	The information appears to be disorganized. 8)
INTERNET USE	Successfully uses suggested internet links to find information and navigates within these sites easily without assistance.	Usually able to use suggested internet links to find information and navigates within these sites easily without assistance.	Occasionally able to use suggested internet links to find information and navigates within these sites easily without assistance.	Needs assistance or supervision to use suggested internet links and/or to navigate within these sites.
SOURCES	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
PARAGRAPH CONSTURCTION	All paragraphs include introductory sentence, explanations or details, and concluding sentence.	Most paragraphs include introductory sentence, explanations or details, and concluding sentence.	Paragraphs included related information but were typically not constructed well.	Paragraphing structure was not clear and sentences were not typically related within the paragraphs.
MECHANICS	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.

Student Learning Experience 2

Purpose:

Introduce the different sub-categories of RAM

Estimated Time: 4 hr

Standards:

New Standards Performance Standards:

E1. Reading

E1c. The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- restates or summarizes information;
- relates new information to prior knowledge and experience;
- extends ideas;
- makes connections to related topics or information.

E2. Writing

E2a. The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

E4. Conventions, grammar, and usage of English language

E4a. The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;

- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

E4b. The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student's revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- adding or deleting details;
- adding or deleting explanations;
- clarifying difficult passages;
- rearranging words, sentences, and paragraphs to improve or clarify meaning;
- sharpening the focus;
- reconsidering the organizational structure;
- rethinking and/or rewriting the piece in light of different audiences and purposes.

E7. Functional Documents

E7a. The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- visual appeal, e.g., format, graphics, white space, headers;
- logic of the sequence in which the directions are given;
- awareness of possible reader misunderstandings.

E7b. The student produces functional documents appropriate to audience and purpose, in which the student:

- reports, organizes, and conveys information and ideas accurately;
- includes relevant narrative details, such as scenarios, definitions, and examples;
- anticipates readers' problems, mistakes, and misunderstandings;
- uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- establishes a persona that is consistent with the document's purpose;
- employs word choices that are consistent with the persona and appropriate for the intended audience.

Mathematics

M1. Number and operation concepts

The student produces evidence that demonstrates understanding of number and operation concepts; that is, the student:

M1a. Uses addition, subtraction, multiplication, division, and exponentiation in forming and working with numerical or algebraic expressions (the statement has been modified).

M1e. Represents numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.

M1f. Compares numbers using order relations, differences, ratios, proportions, percents, and proportional change.

M1g. Carries out proportional reasoning in cases involving part-whole relationships and in cases involving expansions and contractions.

M1h. Understands dimensionless numbers, such as proportions, percents, and multiplicative factors, as well as numbers with specific units of measure, such as numbers with length, time, and rate units.

M2. Geometry and Measurement Concepts

The student produces evidence that demonstrates understanding of geometry and measurement concepts; that is, the student:

M2a. Models situations geometrically to formulate and solve problems.
M2b. Works with two- and three- dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.
M2d. Visualizes objects, paths, and regions in space, including intersections and cross sections of three dimensional figures, and describes these using geometric language.

M6. Mathematical Skills and Tools

The student demonstrates fluency with basic and important skills by using these skills accurately and automatically, and demonstrates practical competence and persistence with other skills by using them effectively to accomplish a task, perhaps referring to notes, or books, perhaps working to reconstruct a method; that is, the student:

M6a. Carries out numerical calculations and symbol manipulations effectively, using mental computations, pencil and paper, or other technological aids, as appropriate.
M6b. Uses a variety of methods to estimate the values, in appropriate units, of quantities met applications, and rounds numbers used in applications to an appropriate degree of accuracy.
M6d. Uses basic geometric terminology accurately, and deduces information about basic geometric figures in solving problems.

M6e. Makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.

M6h. Sets up and solves equations, symbolically (when possible) and graphically.

M6m. Knows standard methods to solve basic problems and uses these methods in approaching more complex problems.

Science

S5. Scientific Thinking

The student demonstrates skill in scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense and diverse conceptual understanding, and appropriate ideas and methods to investigate science; that is, the student:

S5c. Uses evidence from reliable sources to develop descriptions, explanations, and models; and makes appropriate adjustments and improvements based on additional data or logical arguments.

S5d. Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.

S5e. Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.

S5f. Works individually and in teams to collect and share information and ideas.

S6. Scientific Tools and Technologies

The student demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively; that is, the student:

S6d. Acquires information from multiple sources, such as print, the Internet, computer databases, and experimentation.

S7. Scientific Communication

The student demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth of conceptual understanding in science; that is, the student:

S7a. Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.

S7e. Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

Applied Learning

IT_System Memory

A1. Problem Solving

Improve a system

A1b. The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- explains the structure of the system
- analyzes the way the system works, taking account of its functional, social, environmental, and commercial requirements

Plan and organize an event or an activity

A1c. The student plans and organizes an event or an activity:

- develops a planning schedule (the statement has been modified).
- implements and adjusts the planning schedule (the statement has been modified);
- evaluates the success of the event or activity using qualitative and/or quantitative methods;

A2. Communication Tools and Technologies

A2a. The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:

- organizes the presentation in a logical way appropriate to its purpose;
- adjusts the style of presentation to suit its purpose and audience;
- speaks clearly and presents confidently;
- responds appropriately to questions from the audience;

A2b. The student prepares a formal written proposal or report to an organization beyond the school; that is, the student:

- organizes the information in the proposal or report in a logical way appropriate to its purpose;
- produces the proposal or report in a format similar to that used in professionally produced documents for a similar purpose and audience.

A3. Information Tools and Technologies

A3a. The student gathers information to assist in completing project work; that is, the student:

- identifies potential sources of information to assist in completing the project;

- interprets and analyzes the information
- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

A3c. The student uses word-processing software to produce a multi-page document; that is, the student:

- uses features of the software to create and edit the document;

A4. Learning and Self-Management Tools and Techniques

A4a. The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
- identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
- uses what he or she learns from models in planning and conducting project activities.

A4b. The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

A5. Tools and Techniques for Working With Others

A5a. The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

ITEA Standards:

1. Students will develop an understanding of the characteristics and scope of technology.

In order to comprehend the scope of technology, students in grades 9-12 should learn that
J. The nature and development of technological knowledge and processes are functions of the setting.
K. The rate of technological development and diffusion is increasing rapidly.
L. Inventions and innovation are the results of specific, goal-directed research.
M. Most development of technologies these days is driven by the profit motive of the market.

2. Students will develop an understanding of the core concepts of technology

In order to recognize the core concepts of technology, students in grades 9-12 should learn that
Y. The stability of a technological system is influenced by all of the components in the system, especially those in the feedback loop.
Z. Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.
AA. Requirements involve the identification of the criteria and constraints of a product or system and the determination of how they affect the final design and development.
BB. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.
CC. New Technologies create new processes.

13. Students will develop the abilities to assess the impact of products and systems.

As part of learning how to assess the impact of products and systems, students in grades 9-12 should be able to:
J. Collect information and evaluate its quality.
K. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.
L. Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.
M. Design forecasting techniques to evaluate the results of altering natural systems.

Key Concepts Addressed:

Random access Memory, (RAM)
>   DIPs
>   SIMMs
>   DIMMS
>   SODIIMM
>   FPM DRAM
>   EDO DRAM
>   SDRAM
>   RDRAM
>   Credit Card Memory
>   PCMCIA Memory Card
>   Flash
>   VRAM

Student Tasks:

Write a 2-page paper on the subcategories of Random Access Memory.
Addressing the characteristics and applications of the RAM memory types listed above.
* see appendix

Explanation of how learning tasks require higher-level thinking:

The student will be required to research and distill the necessary information to answer the questions listed above. The end result will require a through understanding of the concepts.

Teacher Responsibilities:

Overview and research assistance

Materials & Equipment:

Internet networked computer
Writing material

Resources:

http://www.howstuffworks.com/computer-memory.htm
http://www.xtronics.com/memory/how_memory-works.htm
http://www.gramlich.net/projects/computer_tutorial/memory.html
http://www.crucial.com/library
http://www.pctechguide.com/03memory.htm#Primary_cache
http://pcsupport.about.com/library/weekly/aa080700a.htm
Introductory, Computer Concepts 3rd Edition
        ISBN: 0-7600-5449-5

Student Learning Experience 2 Appendix

Types of Random Access Memory
Computer Technology

Name _____Due Date:_____

Directions:

- The report must be 10 font, double spaced, Comic Sans MS a minimum of 2 pages and 1 in margins on all sides.
- You must turn in a bibliography
- Your report will consist of answering the following questions as a minimum:

  Write a 2 page paper on the subcategories of Random Access Memory.
    Addressing the characteristics and applications of the following RAM memory types:
    DIPs
    SIMMs
    DIMMS
    SODIIMM
    FPM DRAM
    EDO DRAM
    SDRAM
    RDRAM
    Credit Card Memory
    PCMCIA Memory Card
    Flash
    VRAM

- Grading will be as follows:

A+	31, 32
A	30
A-	29
B+	28
B	27
B-	26
C+	25
C	24
C-	23
D	21
D-	20
F	19 or below

- Using the rubrics on the reverse side, the following grades will be assessed:

CATEGORY	4	3	2	1
COMREHENSION	Student is able to accurately answer all questions	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
AMOUNT OF INFORMATION	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
QUALITY OF INFORMATION	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
ORGANIZATION	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well-constructed.	The information appears to be disorganized. 8)
INTERNET USE	Successfully uses suggested internet links to find information and navigates within these sites easily without assistance.	Usually able to use suggested internet links to find information and navigates within these sites easily without assistance.	Occasionally able to use suggested internet links to find information and navigates within these sites easily without assistance.	Needs assistance or supervision to use suggested internet links and/or to navigate within these sites.
SOURCES	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
PARAGRAPH CONSTURCTION	All paragraphs include introductory sentence, explanations or details, and concluding sentence.	Most paragraphs include introductory sentence, explanations or details, and concluding sentence.	Paragraphs included related information but were typically not constructed well.	Paragraphing structure was not clear and sentences were not typically related within the paragraphs.
MECHANICS	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.

Student Learning Experience 3

Purpose:

Introduce ROM memory

Estimated Time: 4 hr

Standards:

New Standards Performance Standards:

E1. Reading

E1c. The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- restates or summarizes information;
- relates new information to prior knowledge and experience;
- extends ideas;
- makes connections to related topics or information.

E2. Writing

E2a. The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

E4. Conventions, grammar, and usage of English language

E4a. The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;

- sentence construction;
- spelling;
- usage.

E4b. The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student's revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- adding or deleting details;
- adding or deleting explanations;
- clarifying difficult passages;
- rearranging words, sentences, and paragraphs to improve or clarify meaning;
- sharpening the focus;
- reconsidering the organizational structure;
- rethinking and/or rewriting the piece in light of different audiences and purposes.

E7. Functional Documents

E7a. The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- visual appeal, e.g., format, graphics, white space, headers;
- logic of the sequence in which the directions are given;
- awareness of possible reader misunderstandings.

E7b. The student produces functional documents appropriate to audience and purpose, in which the student:

- reports, organizes, and conveys information and ideas accurately;
- includes relevant narrative details, such as scenarios, definitions, and examples;
- anticipates readers' problems, mistakes, and misunderstandings;
- uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- establishes a persona that is consistent with the document's purpose;
- employs word choices that are consistent with the persona and appropriate for the intended audience.

Mathematics

M1. Number and operation concepts

The student produces evidence that demonstrates understanding of number and operation concepts; that is, the student:

M1a. Uses addition, subtraction, multiplication, division, and exponentiation in forming and working with numerical or algebraic expressions (the statement has been modified).

M1e. Represents numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.

M1f. Compares numbers using order relations, differences, ratios, proportions, percents, and proportional change.

M1g. Carries out proportional reasoning in cases involving part-whole relationships and in cases involving expansions and contractions.

M1h. Understands dimensionless numbers, such as proportions, percents, and multiplicative factors, as well as numbers with specific units of measure, such as numbers with length, time, and rate units.

M2. Geometry and Measurement Concepts

The student produces evidence that demonstrates understanding of geometry and measurement concepts; that is, the student:

M2a. Models situations geometrically to formulate and solve problems.
M2b. Works with two- and three- dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.
M2d. Visualizes objects, paths, and regions in space, including intersections and cross sections of three dimensional figures, and describes these using geometric language.

M6. Mathematical Skills and Tools

The student demonstrates fluency with basic and important skills by using these skills accurately and automatically, and demonstrates practical competence and persistence with other skills by using them effectively to accomplish a task, perhaps referring to notes, or books, perhaps working to reconstruct a method; that is, the student:

M6a. Carries out numerical calculations and symbol manipulations effectively, using mental computations, pencil and paper, or other technological aids, as appropriate.
M6b. Uses a variety of methods to estimate the values, in appropriate units, of quantities met applications, and rounds numbers used in applications to an appropriate degree of accuracy.
M6d. Uses basic geometric terminology accurately, and deduces information about basic geometric figures in solving problems.
M6e. Makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.
M6h. Sets up and solves equations, symbolically (when possible) and graphically.

M6m. Knows standard methods to solve basic problems and uses these methods in approaching more complex problems.

Science

S5. Scientific Thinking

The student demonstrates skill in scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense and diverse conceptual understanding, and appropriate ideas and methods to investigate science; that is, the student:

S5c. Uses evidence from reliable sources to develop descriptions, explanations, and models; and makes appropriate adjustments and improvements based on additional data or logical arguments.
S5d. Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.
S5e. Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.
S5f. Works individually and in teams to collect and share information and ideas.

S6. Scientific Tools and Technologies

The student demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively; that is, the student:

S6d. Acquires information from multiple sources, such as print, the Internet, computer data bases, and experimentation.

S7. Scientific Communication

The student demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth of conceptual understanding in science; that is, the student:

S7a. Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.
S7e. Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

Applied Learning

A1. Problem Solving

Improve a system

A1b. The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- explains the structure of the system
- analyzes the way the system works, taking account of its functional, social, environmental, and commercial requirements

Plan and organize an event or an activity

A1c. The student plans and organizes an event or an activity:

- develops a planning schedule (the statement has been modified).
- implements and adjusts the planning schedule (the statement has been modified);
- evaluates the success of the event or activity using qualitative and/or quantitative methods;

A2. Communication Tools and Technologies

A2a. The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:

- organizes the presentation in a logical way appropriate to its purpose;
- adjusts the style of presentation to suit its purpose and audience;
- speaks clearly and presents confidently;
- responds appropriately to questions from the audience;

A2b. The student prepares a formal written proposal or report to an organization beyond the school; that is, the student:

- organizes the information in the proposal or report in a logical way appropriate to its purpose;
- produces the proposal or report in a format similar to that used in professionally produced documents for a similar purpose and audience.

A3. Information Tools and Technologies

A3a. The student gathers information to assist in completing project work; that is, the student:

- identifies potential sources of information to assist in completing the project;
- interprets and analyzes the information
- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

IT_System Memory

A3c. The student uses word-processing software to produce a multi-page document; that is, the student:

- uses features of the software to create and edit the document;

A4. Learning and Self-Management Tools and Techniques

A4a. The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
- identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
- uses what he or she learns from models in planning and conducting project activities.

A4b. The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

A5. Tools and Techniques for Working With Others

A5a. The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

ITEA Standards:

1. Students will develop an understanding of the characteristics and scope of technology.

   In order to comprehend the scope of technology, students in grades 9-12 should learn that
   J. The nature and development of technological knowledge and processes are functions of the setting.
   K. The rate of technological development and diffusion is increasing rapidly.
   L. Inventions and innovation are the results of specific, goal-directed research.
   M. Most development of technologies these days is driven by the profit motive of the market.

2. Students will develop an understanding of the core concepts of technology

   In order to recognize the core concepts of technology, students in grades 9-12 should learn that
   Y. The stability of a technological system is influenced by all of the components in the system, especially those in the feedback loop.

Z. Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.

AA. Requirements involve the identification of the criteria and constraints of a product or system and the determination of how they affect the final design and development.

BB. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.

CC. New Technologies create new processes.

13. Students will develop the abilities to assess the impact of products and systems.

As part of learning how to assess the impact of products and systems, students in grades 9-12 should be able to

J. Collect information and evaluate its quality.

K. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

L. Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.

M. Design forecasting techniques to evaluate the results of altering natural systems.

Key Concepts Addressed:

Read Only Memory, (ROM)
- ROM
- PROM
- EPROM
- EEPROM
- Flash memory

* see appendix

Explanation of how learning tasks require higher level thinking:

The student will be required to research and distill the necessary information to answer the questions listed above. The end result will require a through understanding of the concepts.

Teacher Responsibilities:

Overview and research assistance

Materials & Equipment:

Internet networked computer
Writing material

Resources:

http://www.howstuffworks.com/computer-memory.htm
http://www.xtronics.com/memory/how_memory-works.htm
http://www.gramlich.net/projects/computer_tutorial/memory.html
http://www.crucial.com/library
http://www.pctechguide.com/03memory.htm#Primary_cache
http://pcsupport.about.com/library/weekly/aa080700a.htm
Introductory, Computer Concepts 3rd Edition
        ISBN: 0-7600-5449-5

Student Learning Experience 3 Appendix

<u>Read Only Memory</u>
<u>Computer Technology</u>

Name _____Due Date:_____

Directions:

- The report must be 10 font, double spaced, Comic Sans MS a minimum of 2 pages and 1 in margins on all sides.
- You must turn in a bibliography
- Your report will consist of answering the following questions as a minimum:

Write a 2 page paper on the subcategories of Read Only Memory. Addressing the characteristics and applications of the following ROM chips.)
- ROM
- PROM
- EPROM
- EEPROM
- Flash memory

- Grading will be as follows:

A+	31, 32
A	30
A-	29
B+	28
B	27
B-	26
C+	25
C	24
C-	23
D	21
D-	20
F	19 or below

- Using the rubrics on the reverse side, the following grades will be assessed:

CATEGORY	4	3	2	1
COMREHENSION	Student is able to accurately answer all questions	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
AMOUNT OF INFORMATION	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
QUALITY OF INFORMATION	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
ORGANIZATION	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well constructed.	The information appears to be disorganized. 8)
INTERNET USE	Successfully uses suggested internet links to find information and navigates within these sites easily without assistance.	Usually able to use suggested internet links to find information and navigates within these sites easily without assistance.	Occasionally able to use suggested internet links to find information and navigates within these sites easily without assistance.	Needs assistance or supervision to use suggested internet links and/or to navigate within these sites.
SOURCES	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
PARAGRAPH CONSTURCTION	All paragraphs include introductory sentence, explanations or details, and concluding sentence.	Most paragraphs include introductory sentence, explanations or details, and concluding sentence.	Paragraphs included related information but were typically not constructed well.	Paragraphing structure was not clear and sentences were not typically related within the paragraphs.
MECHANICS	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.

Core Assessment

Estimated Time: 6 hr

Student Tasks (product and performance):

The student will be grouped with no more than 4 other students and will be responsible for producing a comprehensive oral and written report to include all types of solid-state memory modules. The audience will be unaware of the subject area and their final understanding will be considered as a factor in the overall grade.

Explanation of How Assessment Tasks Require Higher Level Thinking:

The student will be expected to assimilate the previous work done by all members of the group. This will require a total understanding of the material in addition they will be required to present the material in a format which will provide a proper understanding to the audience.

Teacher's Responsibilities:

Overview and research assistance

Materials & Equipment:

Internet networked computer
Writing material
Visual aids display

Resources:

http://www.howstuffworks.com/computer-memory.htm
http://www.xtronics.com/memory/how_memory-works.htm
http://www.gramlich.net/projects/computer_tutorial/memory.html
http://www.crucial.com/library
http://www.pctechguide.com/03memory.htm#Primary_cache
http://pcsupport.about.com/library/weekly/aa080700a.htm
Introductory, Computer Concepts 3rd Edition
        ISBN: 0-7600-5449-5

Core Assessment Appendix

<u>System Computer Memory</u>
<u>Computer Technology</u>

Group _____Due Date:_____

Directions:

Your group will develop a presentation on System Memory. Your audiences are individuals who are not familiar with the subject area. Specific questions will be addressed and answered in your presentation.

- The report must be a size 10 font, double spaced, Comic Sans MS a minimum of 4 pages and 1 in margins on all sides.
- The final will be to presented orally with all members participating
- A minimum of 20 minutes per presentation.
- Visual Aids will be used as part of the presentation, either electronic, poster board, mockup etc.
- You must turn in a bibliography
- Your presentation will consist of answering the following questions as a minimum:

    1. What is RAM and how is it used?

    2. How does RAM work?
        How does addressing location determined?
        What are the characteristics of RAM
        Include as a minimum the following types of RAM:
            Cache
            SIMM's
            DIMM's
            Flash
    3. What is Virtual Memory and how does it work with RAM?
    4. What is the difference between ROM and RAM?
    5. How is ROM used in the personal computer?

- The presentation will be averaged in as 40 percent of your quarter grade.
- Grading will be as follows:

A+	51	B	43	C-	37
A	49	B-	42	D	33
A-	47	C+	40	D-	26
B+	45	C	38	F	25 or below

- Using the rubrics on the reverse side, the following grades will be assessed:

CATEGORY	4	3	2	1
COMREHENSION	Student is able to accurately answer all questions	Student is able to accurately answer most questions posed by classmates about the topic.	Student is able to accurately answer a few questions posed by classmates about the topic.	Student is unable to accurately answer questions posed by classmates about the topic.
SPEAKES CLEARLY	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or cannot be understood OR mispronounces more than one word.
POSTURE AND EYE CONTACT	Stands up straight, looks relaxed and confident. Establishes eye contact with everyone in the room during the presentation.	Stands up straight and establishes eye contact with everyone in the room during the presentation.	Sometimes stands up straight and establishes eye contact.	Slouches and/or does not look at people during the presentation.
VISUAL AIDS	Visual aids are neat, accurate and add to the reader's understanding of the topic.	Visual aids are accurate and add to the reader's understanding of the topic.	Visual aids are neat and accurate and sometimes add to the reader's understanding of the topic.	Visual aids are not accurate OR do not add to the reader's understanding of the topic.
AMOUNT OF INFORMATION	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
QUALITY OF INFORMATION	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
ORGANIZATION	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well constructed.	The information appears to be disorganized. 8)
INTERNET USE	Successfully uses suggested internet links to find information and navigates within these sites easily without assistance.	Usually able to use suggested internet links to find information and navigates within these sites easily without assistance.	Occasionally able to use suggested internet links to find information and navigates within these sites easily without assistance.	Needs assistance or supervision to use suggested internet links and/or to navigate within these sites.
SOURCES	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
DRAFT COPY	Detailed draft is neatly presented and includes all required information.	Draft includes all required information and is legible.	Draft includes most required information and is legible.	Draft is missing required information and is difficult to read.
PARAGRAPH CONSTURCTION	All paragraphs include introductory sentence, explanations or details, and concluding sentence.	Most paragraphs include introductory sentence, explanations or details, and concluding sentence.	Paragraphs included related information but were typically not constructed well.	Paragraphing structure was not clear and sentences were not typically related within the paragraphs.
MECHANICS	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.
PARTICIPATION	All Group members were actively involved in the development of the report and the final presentation	All group members were involved in the report and the final presentation.	Most group members were involved in the project and the final presentation	Participation was limited to one or two individuals in the group